

Work Order ID 66265

Tuesday, February 08, 2011 11:34:07 AM

Page 1

Item ID: D407-667-205TRN

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Turning Detail

Start Date: 2/8/2011 Start Qty: 1.00

Required Date: 2/14/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D407-667-245

Rev F

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8531 on both ends as per Folio FA248 2-Turn first side as per Folio FA248 3- File transition lines smooth.

SL 11/02/10

110

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

SL 11/02/10

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA248 2- File-transition lines smooth. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus as per Dwg D407-667-245 Inside of Cuff(Donot engrave on outside of tube)

SL 11/02/10

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Page 2

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Start Date: 2/8/2011 Start Qty: 1.00

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Date:

Tooling:

Date:

Run Start

Stop

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00

QC

Memo

0.00

Quality Control

140

QC8- Inspect parts - second check

0.00

QC

Memo

0.00

Quality Control

150

Crosstubes Chemical Conversion

0.00

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Ensure no sand is in the tube before alodine.



SL 11/02/10

11.2.11

①

Ø

①

B

11/02/15

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Page 3

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Required Date: 2/14/2011 Req'd Qty: 1.00

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Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC3- Inspect Part Finish

0.00

[Handwritten signature]

11-2-16

QC

Memo

0.00

Quality Control

170

Packaging

0.00

Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack Location: 64

BB 11/2/16

180

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

[Handwritten signature] 11/02/16
11-02-16

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Picklist Print

Tuesday, February 08, 2011 11:34:04 AM

Page 1

Work Order ID: 66265

Parent Item: D407-667-205TRN

Parent Item Name: Crosstube Turning Detail



Start Date: 2/8/2011

Required Date: 2/14/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified by: DD
IPP Rev:C 08-08-19 revE as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D6011-115

Manufactured No

120

Each

9.0000

1

1



Crosstube Material



SL 11/02/10

Location

Loc Qty

Loc Code

LG

9

58413

9

1

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NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order: 66265
Description: Crosstube Assembly	Part Number: D407-667-245
Inspection Dwg: D407-667-245 Rev: F	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.495	✓		mic CNC-04	
	1.832	+0.005/-0.000	1.837	✓		Vern JL-3	
	1.838	+0.005/-0.000	1.841	✓		"	
	1.892	+0.005/-0.000	1.895	✓		"	
	2.052	+0.005/-0.000	2.056	✓		mic CNC-04	
	2.206	+0.005/-0.000	2.208	✓		"	
	2.521	+0.005/-0.000	2.525	✓		"	
	2.633	+0.005/-0.000	2.636	✓		"	
	4.10	+/-0.030	4.10	✓		Vern JL-3	
	4.978	+/-0.030	4.980	✓		"	
	2.040	+0.000/-0.010	2.033	✓		"	
	0.125	+/-0.010	.130	✓		"	
	R0.063	+/-0.010	.063	✓		R-G	
	R0.500	+/-0.010	.500	✓		"	
SIDE B	2.490	+0.005/-0.000	2.494	✓		mic CNC-04	
	1.832	+0.005/-0.000	1.836	✓		Vern JL-3	
	1.838	+0.005/-0.000	1.842	✓		"	
	1.892	+0.005/-0.000	1.893	✓		"	
	2.052	+0.005/-0.000	2.057	✓		mic CNC-04	
	2.206	+0.005/-0.000	2.208	✓		"	
	2.521	+0.005/-0.000	2.525	✓		"	
	2.633	+0.005/-0.000	2.636	✓		"	
	4.10	+/-0.030	4.10	✓		Vern JL-3	
	4.978	+/-0.030	4.980	✓		"	
	2.040	+0.000/-0.010	2.033	✓		"	
	0.125	+/-0.010	.130	✓		"	
	R0.063	+/-0.010	.063	✓		R-G	
	R0.500	+/-0.010	.500	✓		"	
	112.91	+/-0.020	112.93	✓		m-tape	

Measured by: SL	Audited by: [Signature]	Prototype Approval:	N/A
Date: 11/02/09	Date: 11.2.11	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-205)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	06.03.30	Tolerance revised for 4.978 dimension	KJ/JLM	
D	07.02.19	Dwg Rev updated	KJ/JLM	
E	09.05.20	Dwg Rev updated	KJ	[Signature]

Item	QTY -245	PART NUMBER	DESCRIPTION
1	X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
4	2	D2873-043	NUT PLATE
5	2	D2873-045	NUT PLATE
6	1	D2894-1	SUPPORT
7	2	D3190-1	CHAFING SHIELD
8	2	D3595-063-430	RUBBER CUSHION
9	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
10	4	MS21920-22	CLAMP
11	2	MS21920-25	CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 27.7 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, PER QSI 035.
- 16) INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.
- 17) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
08/11/06

F	REFORMAT NOTES TO NEW STANDARDS (ZN B8-1); RELOCATED FLAG # 6 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D5-2); REORGANIZED VIEWS AND REFORMATED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR#08-21 AND ECN#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. F
CHECKED	RF	D407-667-245	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASSY (407 HIGH AFT)	NTS
DE APPR.	RF	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8

7

6

5

4

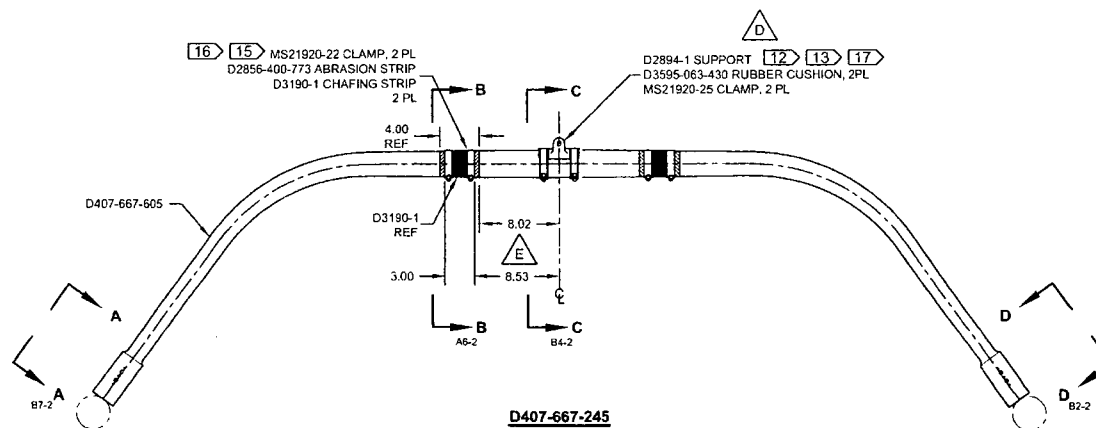
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2

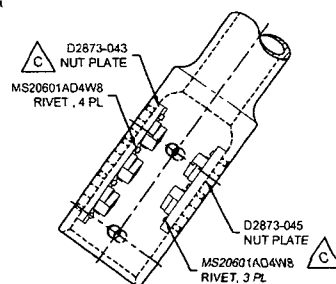
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16 15 MS21920-22 CLAMP, 2 PL
 D2856-400-773 ABRASION STRIP
 D3190-1 CHAFING STRIP
 2 PL

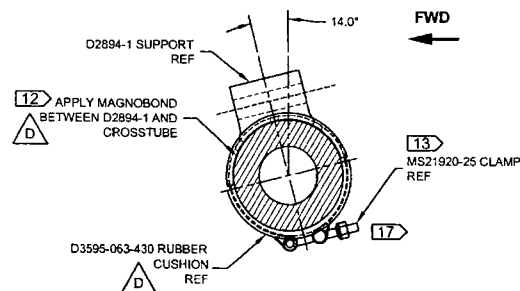
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 D3595-063-430 RUBBER CUSHION, 2PL
 MS21920-25 CLAMP, 2 PL



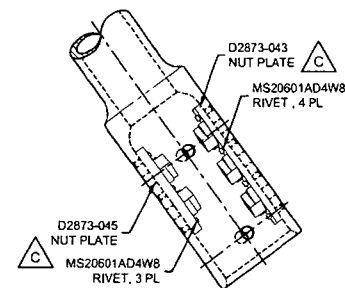
D407-667-245
ASSEMBLY DETAIL
 (VIEW LOOKING FWD)



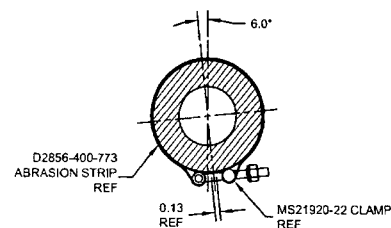
VIEW A-A CUFF DETAIL
 SCALE 4X



SECTION C-C
 SCALE 4X



VIEW D-D CUFF DETAIL
 SCALE 4X



SECTION B-B
 SCALE 4X, 2PL

RELEASED
 08/11/12

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	EP	DRAWING NO.	REV. F
MFG. APPR.	EP	D407-667-245	SHEET 2 OF 4
APPROVED	EP	TITLE	SCALE
DE APPR.	EP	CROSSTUBE ASS'Y (407 HIGH AFT)	NT
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
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66265

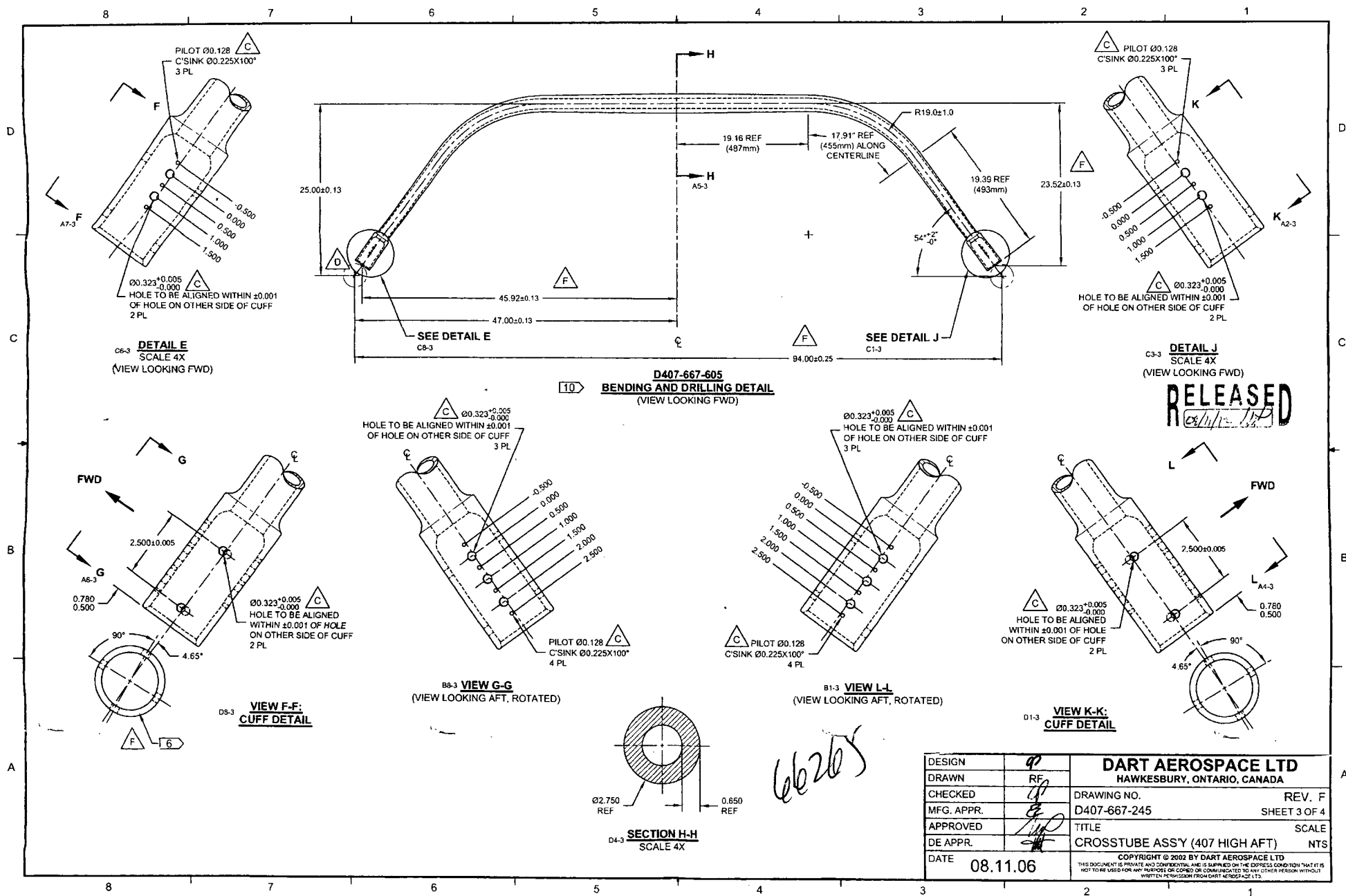
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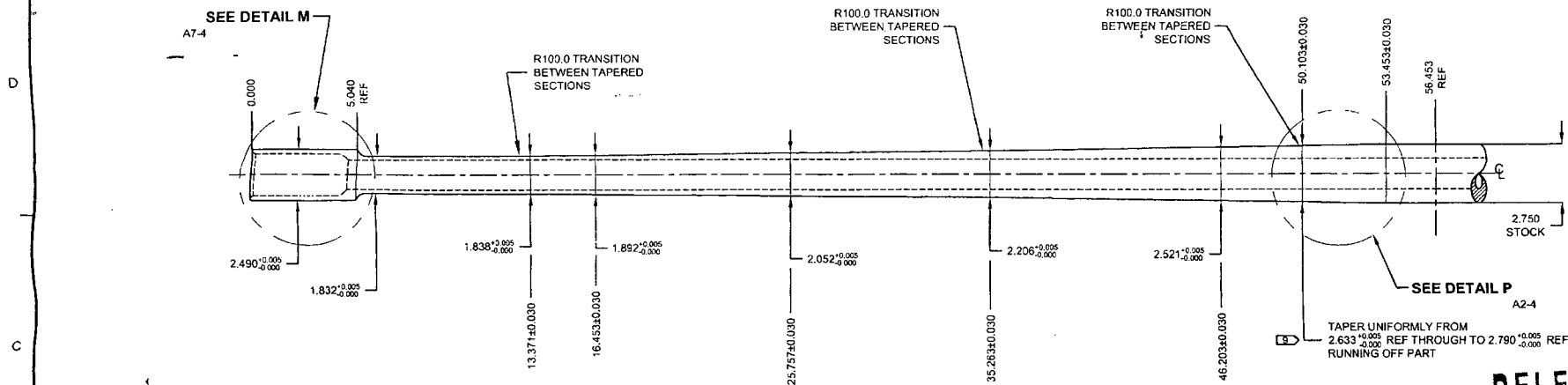
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

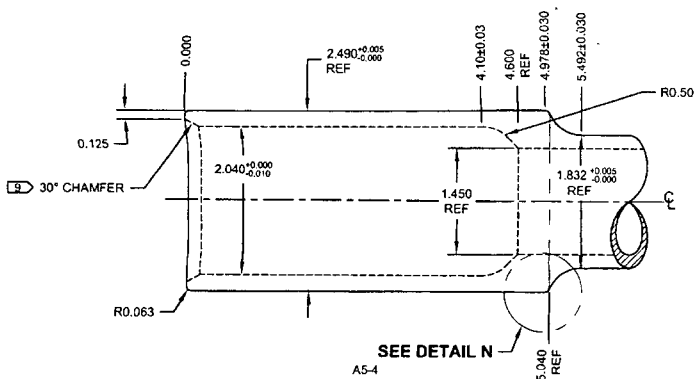
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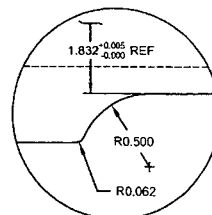
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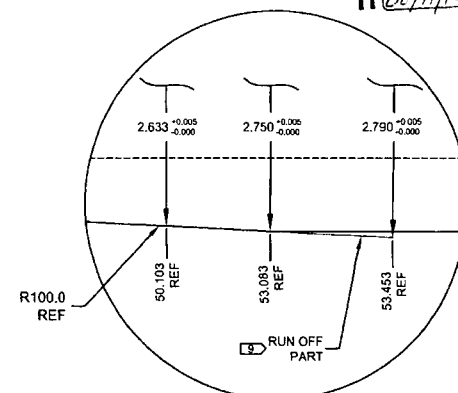
D407-667-245 MACHINING DETAIL



DETAIL M: CROSSTUBE CUFF
SCALE 3X



DETAIL N: CUFF TRANSITION
SCALE 2X



DETAIL P: TAPER RUN-OFF
NOT TO SCALE

RELEASED
08/11/12

66265

DESIGN	40	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	40	DRAWING NO.	REV. F
MFG. APPR.	40	D407-667-245	SHEET 4 OF 4
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DE APPR.	40	CROSSTUBE ASSY (407 HIGH AFT)	NTS
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8 7 6 5 4 3 2 1

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